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ABSTRACT

Recent national data were used to examine the impact of individual and institutional variables on the ability of race and sex groups to complete a four year college degree program promptly (within three or four consecutive years) versus six to seven years. The results showed that black students were less successful than whites in prompt and in subsequent four year college completion. Also, males were far less successful than females in completing college on schedule. Initial race and sex differences favoring whites and females remained when examining subsequent college graduation rates. Regarding variable effects, college grade performance was found to be a major determinant of prompt and subsequent college completion for all race and sex groups. In addition, high school rank was an important determinant of prompt graduation for white males and prompt and subsequent graduation for black females. With reference to college characteristics, private colleges had a significant effect on prompt graduation for white and black males but no significant effect for females. However, attending a selective college did not have a significant effect on prompt or subsequent graduation for any of the four race and sex groups studied. (Author/APM)

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Center for Social Organization of Schools

Report No. 310
June 1981

STUDENT AND INSTITUTIONAL CHARACTERISTICS AS DETERMINANTS OF THE PROMPT AND SUBSEQUENT FOUR-YEAR COLLEGE GRADUATION OF RACE AND SEX GROUPS

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U.S. DEPARTMENT OF EDUCATION

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Introductory Statement

The Center for Social Organization of Schools has two primary objectives: to develop a scientific knowledge of how schools affect their students, and to use this knowledge to develop better school practices and organization.

The Center works through five programs to achieve its objectives. The Studies in School Desegregation program applies the basic theories of social organization of schools to study the internal conditions of desegregated schools, the feasibility of alternative desegregation policies, and the interrelations of school desegregation with other equity issues such as housing and job desegregation. The School Organization program is currently concerned with authority-control structures, task structures, reward systems, and peer group processes in schools. It has produced a large-scale study of the effects of open schools, has developed Student Team Learning Instructional processes for teaching various subjects in elementary and secondary schools, and has produced a computerized system for school-wide attendance monitoring. The School Process and Career Development program is studying transitions from high school to post secondary institutions and the role of schooling in the development of career plans and the actualization of labor market outcomes. The Studies in Delinquency and School Environments program is examining the interaction of school environments, school experiences, and individual characteristics in relation to in-school and later-life delinquency.

The Center also supports a Fellowships in Education Research program that provides opportunities for talented young researchers to conduct and publish significant research, and to encourage the participation of women and minorities in research on education.

This report, prepared by the Studies in School Desegregation program, examines factors that influence prompt and subsequent college completion rates of black, white, male, and female students.

Abstract

Recent national data were used to examine the impact of individual and institutional level variables on the ability of race and sex groups to complete a four-year college promptly (i.e., within three to four consecutive years) versus six to seven years after having entered college in 1972 or 1973. The results showed that black students were less successful than whites in prompt and in subsequent four-year college completion. In addition, males were far less successful than females in completing college on schedule.

Initial race and sex differences favoring whites and females remained when examining subsequent college graduation rates. However, the magnitude of the race and sex disparities was reduced when taking these rates into consideration. In addition, the proportion of blacks and males completing their B.A. degree increased substantially when college re-entry rates were examined. This finding indicates the importance of including college re-entry rates when describing the educational attainment of students.

Regarding variable effects, college grade performance was found to be a major determinant of prompt and subsequent college completion for all race and sex groups. In addition, high school rank was an important determinant of prompt graduation for white males and prompt and subsequent graduation for black females. With reference to the college characteristics, attending a private college had a significant positive effect on prompt college graduation for white and black males but no significant effect for females. However, attending a selective college did not have a significant effect on prompt or subsequent graduation for any of the four race/sex groups examined.

Acknowledgments

The helpful comments and suggestions provided by John Hollifield, Joyce Epstein, James McPartland, and Clifford Harmon are very much appreciated.

Introduction

This study focuses specifically on black and white men and women who entered a four-year college after high school graduation in 1972 or 1973 and who were or were not successful in obtaining their degree on schedule (i.e., within three to four years) or six to seven years after enrollment in 1972 or 1973. Some recent studies suggest that certain disadvantages result from delaying as well as terminating the college career. Parnes and Kohen (1976) noted, for example, that college dropouts were no better off and in some instances were worse off than high school graduates in terms of job access and income. Other investigators have reported a moderate association between educational discontinuity and diminished occupational status attainment (Duncan, Featherman and Duncan, 1972; Featherman and Carter, 1976; Karweit, 1977). The latter researchers concluded that interruptions and discontinuities in schooling produce attenuated occupational attainment because employers evaluate and process age-specific cohorts and are more favorable toward prompt achievers. Robertshaw and Wolfle (1980) replicated this finding. They reported that delaying entry into post-secondary education or interrupting the sequence inhibits students' subsequent status attainment relative to students who do not delay or interrupt. Students who delayed their college career were found to obtain less education than non-delayers net of social class background and ability. Delayers and interrupters were also found to have lower educational expectations than non-delayers and prompt completers (Robertshaw and Wolfle, 1980).

Many students who drop out or interrupt their college career return and graduate. For example, an early study by Batts (1959) indicated that more than half of the dropouts in his survey returned and graduated from college. Eckland (1964) similarly noted in a more recent study that slightly less than

half of the dropouts in his Illinois survey returned and graduated or were still potential graduates after ten years. The findings by Batts (1959) and Eckland (1964) clearly establish the importance of studying dropout rates over time. Thus, in this study, the ability of males and females and blacks and whites to complete college on schedule, and subsequently complete after having dropped out, will be examined. In addition, race and sex differences in variables affecting the college completion process will be reported.

Sample

The National Longitudinal Study (NLS) of the High School Senior Class of 1972 is the data set that is used in this study. The survey, which is currently under the auspices of the Department of Education's National Center for Education Statistics (NCES), was conducted to determine what happened to students after they left high school as indicated by their educational and vocational plans and experiences. The project employed a two-stage probability sample with schools as first sampling units and students as second stage units. The original base year (1972) survey involved a representative sample of some 21,600 white and minority (Mexican-American, Oriental, Puerto Rican, Native American, Black) twelfth grade men and women. These students were enrolled in approximately 1,200 U.S. public, private and church-affiliated schools. Whites (N=16,606) and blacks (3,119) constituted 91% of the original sample. The present analysis was restricted to black-white comparisons for two reasons. First, the other minorities in the NLS study (i.e. Mexican-Americans, Asians, Indians) comprised only nine percent of the total sample. In addition, extensive missing data existed for these minority groups on the standardized achievement test measure and other major variables of interest to this analysis. Secondly, and more importantly, the distinct cultural, educational, and social characteristics

of these minority groups do not warrant combining them into a single group.

The sample of selected schools for the NLS study was stratified into 600 strata based on a number of criteria: (1) the type of control exerted over the school (public or nonpublic); (2) the geographic division that the school was located in; (3) the number of twelfth grade enrollees; (4) the proximity of the school to institutions of higher education; (5) the percent minority group enrollment; (6) the income level of the community surrounding the school; (7) the degree of urbanization of the area surrounding the school. In addition, schools that were located in low income areas or that had a high proportion of minority student enrollment were sampled at approximately twice the sampling rate used for the remaining schools in order to obtain an adequate representation of minority students. Schools in the lowest grade twelve enrollment stratum (i.e. less than 300 seniors) were selected with a probability proportional to their estimated number of senior students and without replacement, while schools in the remaining strata were selected with equal probabilities and without replacement.

Within each cooperating school, a random sample of eighteen twelfth graders and five alternates was drawn from senior class rosters. Students who participated in the survey were asked to complete a questionnaire which dealt with their post high school plans, aspirations, family background, and previous educational experiences. Students were also requested to complete an aptitude test that measured their verbal and nonverbal ability. Additional student data were obtained from school records and a questionnaire completed by guidance counselors.

A first year follow-up survey was conducted between October 1973 and April 1974. Ninety-four percent of the seniors who had participated in the base year survey completed the first follow-up questionnaire (65 percent by

mail and 29 percent by personal interview). Second and third year follow-up surveys were conducted in the Fall of 1974 and 1976. A fourth year follow-up survey was conducted in 1979.

The base year and all subsequent follow-up data are used in this study. During the base year (1972) survey, some of the NLS respondents were making the transition from high school to college. Approximately 30 percent (N=5,822) of the original black-white sample (N=19,725) employed in this study entered a four-year college between 1972 and 1973.

Methodology

Variables

The impact of student and institutional level variables on the four-year college graduation of race and sex groups is examined in this study. Student level measures include family background, standardized test performance, high school rank, college sophomore year grade performance, and students' higher educational expectations. Institutional level measures included college selectivity and type of control (i.e. public v. private) exerted over the colleges that students attended. The impact of social structural and institutional measures on student achievement has been seldom examined in past research. In addition, the few studies that have assessed college effects have not entailed simultaneous race-sex comparisons, which is one of the features of this study.

The student and institutional level measures included in this analysis are as follows:

Family Status and Student Ability

Past findings based on white samples are equivocal concerning the impact of family socioeconomic status (SES) on the college outcomes of students. Wolfle (1973) and Bayer (1968) found that although SES is a major determinant

of college entry, its impact on college completion is minimal. However, other studies have reported a significant effect of SES on college graduation (Sewell and Shah, 1967; Tinto, 1975). Eckland (1964) noted that the conflicting results may reflect the use of different dependent measures (e.g. retention through the freshman year vs. retention throughout four consecutive years of college vs. retention measured over a ten-year period).

In this study, three measures are employed to examine the impact of family socioeconomic status on college completion: father's occupation, and mother's and father's education. Father's occupation is coded in the metrics of Duncan's SEI scores. Categories for the parental education measure (1-5) ranged from less than high school graduation to graduate and professional degree attainment. All three of the SES measures are base year items. The sheaf analytic approach used by Heise (1972) was used to construct a composite index which summarizes the combined influence of the three status measures.

Studies reviewed by Pantages and Creedon (1978) indicated that college graduates have significantly higher SAT and ACT scores than nongraduates. The standardized test variable employed in this study is a base year measure and is similar to the college admissions test administered by ETS and ACT. It tapped students' verbal and nonverbal ability and consisted of an equally weighted linear composite of four subtests: math, vocabulary, letter groups and reading.

High School Rank

Tinto (1975) and others (Kamens, 1971; Jaffe and Adams, 1970; Blanchfield, 1971) observed that class rank and high school grade performance are the most important predictors of college graduation. Class rank, which is the measure of high school performance used in this study, was obtained during the base year survey from students' high school records and coded in

deciles.

College Grade Performance

Past investigations of whites have shown college grade performance to be a major positive predictor of college graduation (Summerskill, 1962: Pantages and Creedon, 1978). The current measure of college grades is based on student reports. Studies have shown that students' self-reported grades are reliable relative to official reports (Davidsen, 1963; Lenke, 1960; Baird, 1969; Maxey and Ormsky, 1971). These studies have reported correlations ranging from .83 to .93 between student self-reported grades and official reports. The present measure was obtained from the second year follow-up survey and is a seven category item that ranges from mostly A to mostly D.

Educational Expectations

Studies consistently show that the higher students' educational expectations, the more likely their chance of college graduation (Spaeth, 1970; Medsker and Trent, 1968; Astin, 1964). In fact, Sewell and Shah (1967) found that when family background and standardized test performance are controlled, educational expectation is the strongest predictor of college graduation. The current measure of expectations is a six category base year measure that was obtained during the initial survey. Students indicated the highest level of education that they expected to achieve (ranging from less than high school graduation to obtaining a graduate or professional degree).

College Selectivity

The direction of influence of college selectivity on college graduation of whites is not clear. Some studies indicate that colleges with a high percentage of high-ability students have higher dropout rates than institutions of lower quality (Davis, 1965; Spady, 1970; Tinto, 1975). Davis has

described this inverse relationship as a "frog pond effect." He noted that the high-ability climate of the student body tends to lower the grade performance of the ablest entering freshmen. Davis further explained that low grades are directly related, in a negative direction, to college graduation. Therefore, the mean ability level of the student body might also have a negative effect on college graduation via its negative impact on grades. In contrast to Davis' (1965) argument, Meyer (1970), Nelson (1972), and Astin (1964) found a positive relationship between college selectivity and college graduation. Tinto (1975) noted that these conflicting results may be explained by other factors that differentiate graduates from non-graduates (e.g. faculty quality and the extent to which students are socially and academically integrated in the college environment). These measures have been included in some studies but not others.

The present measure of college selectivity was derived from a supplementary institutional data file that contained information about the colleges that NLS respondents attended. College selectivity is defined as the mean SAT score of the student body for each institution.

College Control

The influence of attending a private college (coded 1) versus a public college (coded 0) on the prompt college graduation of race and sex groups is also examined. Private colleges have been previously found to have higher short- and long-term retention rates than public colleges (Tinto, 1975; Astin, 1972; Kolstad, 1977). Tinto (1975) noted that in private colleges, much of the student selection and screening occurs during college admissions, thereby minimizing the chance of students dropping out. The present college control measure was also obtained from the NLS institutional data file.

Apart from college selectivity and college control, other characteristics of the college have been examined in past studies. For example, some studies have investigated the effects of college size and college locale on student access and retention (Kamens, 1971; Feldman and Newcomb, 1969; Panos and Astin, 1968). These studies generally show that attending a large college is negatively related to student retention. The findings regarding the effects of college locale (i.e. rural/urban; south/non-south) are less clear. However, preliminary analyses involving the present NLS sample indicated that region and college size were not significantly related to prompt graduation for race and sex groups. As a result, these variables were excluded from the present analyses.

Four-Year College Completion (B.A. Obtained)

The major dependent variables in this study are: (a) Prompt Graduation--having obtained the B.A. or college graduation status in 1976; and (b) Subsequent Graduation--having obtained the B.A. or college graduation status by 1979. Students included in the analysis entered a four-year college in the Fall of 1972 or 1973. The 1976 measure of college graduation was obtained from a third year follow-up study item which asked students to indicate the highest level of educational attainment they had achieved as of 1976. The response categories ranged from finished high school to Ph.D. or advanced professional degree. Students who had indicated that they had received a master's degree in 1976 were also classified as prompt college graduates. Data on the subsequent college graduation status of students were obtained from a fourth year follow-up item which asked students what their degree status was as of October, 1979. The response categories were the same as the 1976 items. Students who did not receive a B.A. or a master's degree in 1976 but who completed a master's or professional degree by 1979

were classified as subsequent college graduates.

For the 1976 measure, students who transferred to another four-year college between 1972 and 1973 and who did or did not graduate in 1976 are also included in the analysis. In addition, students who went to a four-year college for three years and then transferred to a graduate school prior to completing their B.A. are also included in the analysis and are considered as college graduates.

The 1976 and 1979 measures of college completion (B.A.) were recoded as dummy variables with college completers coded as 1 and non-completers coded as 0. It should be noted that the appropriateness of using dichotomous measures as dependent variables in regression analysis has been discussed. These dependent variables have been occasionally found to create estimation problems in simple linear models (Goldberger and Duncan, 1973). However, in cases like the present one where: (1) the dependent variable is originally a categorical rather than a continuous measure, and (2) interest is primarily in the occurrence or non-occurrence of some phenomenon (i.e. did or did not graduate), use of dichotomous dependent variables is appropriate (Nie et al., 1975; Hanushek and Jackson, 1977).

Analytical Model

The path analytic framework employed in this study is presented in Figure 1. It is similar to past educational attainment models in which

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Figure 1 About Here

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family background, standardized test performance, students' educational expectations, and high school academic performance have been found to directly and indirectly affect students' college enrollment, post-secondary experiences, and college outcomes (Portes and Wilson, 1976; Sewell and Shah,

1967; Thomas, 1979; Thomas, Alexander and Eckland, 1979; Tinto, 1975). The present recursive model shows the influence of student and college characteristics on the two major dependent variables--prompt and subsequent college graduation. The first panel of variables in Figure 1 depicts the influence of family background and standardized test performance on college completion without taking other independent variables into consideration. In panels 2 through 5 the effects of these background variables are examined when controlling for high school rank, educational expectations, college characteristics, and students' college grade performance. This step-wise procedure or examining the influence of the independent variables on the major dependent variables with and without statistical controls on other independent variables was employed throughout the analysis.

Preliminary Test for Race-Sex Interactions

A test for the significance of race and sex interactions (Tatsouka, 1971) was initially performed to determine if the path model outlined in Figure 1 warranted separate analysis for race and sex groups. Significant interactions exist (Kerlinger and Pedhazur, 1973) if the percent of variance in the dependent variable accounted for by the multiple model (e.g. race and sex groups treated separately) is significantly greater than the percent of variance explained by the common or single model (e.g. race and sex groups treated as a single group, with race and sex included as covariates). The results produced from the test include: (1) the percents of variance accounted for by the multiple models for each dependent variable; (2) the percents of variance accounted for by the common or single model for each dependent variable; (3) the percents of variance increases resulting from the multiple model, and (4) the F statistics associated with the differences in explained variance when race and sex groups are treated separately or combined as a single group.

Race interactions for the 1976 and 1979 measures of college completion were significant at the .05 level for females. Thus, a small but significantly greater percent of the variance was explained when white and black females were analyzed separately, than as a single group. In addition, race interactions involving the 1979 measure of college completion were significant for males at the .05 level. Sex interactions for blacks and whites were significant at the .05 level for the 1979 measure of college completion. Given the presence of significant race and sex interactions for both major dependent variables, separate parallel path models testing the effects of the independent variables on these dependent measures were evaluated for each race/sex group (i.e. black males; black females; white males; white females).

Results

Table 1 presents the item means and standard deviations for all variables in the regression analyses for race and sex groups.

Table 1 About Here

Sex differences are indicated by the higher means on high school rank for black and white females than for males. Females also make slightly higher college grades than males. However, both white and black males attend somewhat more select colleges than females, despite the similar standardized test performance between the sexes and the higher high school rank performance of females than males. Race differences shown in Table 1 include the higher parental background status, standardized test and high school rank performance of whites than blacks. Also, NLS whites attend slightly more select colleges than blacks. However, the enrollment of both groups in private four-year colleges is about equal.

Striking race and sex differences are reported in Table 1 for the two major dependent variables. The results show that NLS blacks were less successful than whites in prompt (1976) and subsequent (1979) four-year college graduation. In addition, males were less successful than females in completing college on schedule. Table 1 also indicates that although initial (i.e. 1976) race and sex disparities in college completion favoring whites and females remained in 1979, the magnitude of the differences were reduced when subsequent graduation rates are included. More importantly, the proportion of blacks and males completing four-year colleges increases substantially when college re-entry rates are taken into consideration.

Tables 2-5 present the results from the regression analyses for the two major dependent variables--prompt (BA76) and subsequent (BA79) four-year college graduation. Tables 6 and 7 report the direct, indirect and total effects of the independent variables on the major dependent variables.

Tables 2-7 About Here

Sex Effects

Blacks

Findings regarding sex differences and similarities for blacks can be noted by focusing on the full equations (Equations 6) for the major dependent variable in Tables 2 and 3. First, the standardized coefficients (the bottom values which indicate the relative effects of variables within models) show that the most striking sex similarity is that college grade performance is one of the two prime predictors of prompt and subsequent college graduation for black males (.351; .273) and black females (.218; .179). The corresponding unstandardized values suggest that the effect of college grade performance on both dependent measures is slightly greater for black males (.147; .120) than for black females (.098; .079).

The standardized coefficients also show that high school rank is a second major predictor of prompt and subsequent graduation for black females (.189; .183). Tables 6 and 7 show that most of the effect of high school rank on the major dependent variables for black females is direct. With reference to graduating on schedule, following college grade performance, attending a private college (.268) is the second most important factor for black males. Most of its influence is also direct (see Table 6). However, private college attendance does not significantly influence the subsequent graduation of black males, nor either of the two dependent variables for black females.

Whites

The standardized values in Table 4 and 5 show that college grade performance is also one of the two most important determinants of prompt and subsequent graduation for white males (.239; .311) and white females (.240; .179). The unstandardized values indicate that its effect on prompt graduation is about equal among white males (.091) and white females (.093), while its influence on subsequent college graduation is slightly stronger for white males (.104) than white females (.058). High school rank (.215) and attending a private college (.206) are the second most important determinants of prompt graduation for white males; and educational expectations (.151) the second strongest factor affecting their subsequent graduation. For white females, following college grade performance, educational expectations (.181) is the next most influential variable on prompt graduation. However, college grade performance is the only variable that has a sizeable and significant effect on the subsequent college graduation of white females. Tables 6 and 7 show that the effects of educational expectations on the subsequent graduation of white males and the prompt graduation of white

females is largely direct.

Race Differences

Turning to race differences, a comparison of the unstandardized values in Tables 2-5 show that the impact of college grade performance on prompt and subsequent graduation is somewhat stronger for black males (.147; .120) than for white males (.091; .104), white females (.093; .058) and black females (.098; .079). Also, among males, attending a private college has a slightly stronger effect on prompt graduation for black males (.270) than for white males (.217).

Other race differences include the relationships between family background, educational expectations, and the two major dependent variables. Family background has a noticeably stronger effect on the subsequent than on the prompt graduation of black females (.167; .031) and white males (.118; .063). However, the reverse is true for black males (.055; .100). Its impact on both dependent variables is equal for white females (.063; .063). Next, the standardized and unstandardized values show that educational expectations does not have a significant effect on the prompt or subsequent college graduation of blacks. However, it has a positive significant effect on the prompt and subsequent graduation of white males and the subsequent graduation of white females.

Important race similarities reported in Tables 2-5 include the negligible effects of standardized test performance and college selectivity on prompt and subsequent graduation for all groups. These variables have been reported as having significant effects on college completion in past research on whites (Pantages and Creedon, 1978; Davis, 1965; Astin, 1964; Meyer, 1970). However, for black students, Thomas (1981) recently found that attending a predominantly black four-year college was more influential and

beneficial for the prompt and subsequent graduation of black students than attending a highly selective college.

A comparison of the coefficients of determinations for the four race-sex groups shows that the independent variables are about equally predictive of prompt and subsequent graduation for whites and black females. However, because of the strong impact of private college attendance, college grades, and family status on prompt graduation for black males, the independent variables are more predictive of the prompt than the subsequent graduation of black males. Also, in general, the models are more predictive of the two major dependent variables for males than females (white males--R^2 = .264, BA76; .210, BA79; black males--R^2 = .320, BA76; .144, BA79; white females--R^2 = .160, BA76: .126, BA79; black females--R^2 = .136, BA76; .125, BA79).

Summary and Discussion

This study sought to evaluate factors that influenced the ability of race and sex groups to complete a four-year college promptly (i.e., within three to four consecutive years) versus six to seven years after having entered college in 1972 or 1973. Several interesting findings were derived from the data. First, among students who entered a four-year college shortly after high school, black students were less successful than whites regarding prompt (1976) and subsequent (1979) four-year college graduation. In addition, males were less successful than females in completing college on schedule. However, the proportion of NLS blacks and males who completed college increased substantially when taking subsequent graduation rates into consideration. This observation indicates the importance of examining college drop-out and re-entry patterns when studying postsecondary schooling outcomes.

Important race and sex differences and similarities were also found regarding the influence of the independent variables on the two major

dependent variables. The major similarity occurring was that for all groups college grade performance was among the two strongest predictors of prompt and subsequent college graduation. Its effect was positive for both race and sex groups, which means that maintaining a high GPA is critical for college success.

This observation suggests at least three implications. First, students must be well integrated into the academic and social environment of their college campuses in order to achieve successfully. Tinto (1975) made a similar observation in his previous study of white college students. Second, educational administrators must be efficient in matching students with various colleges in order to maximize college students' success. Third, students must realize the importance of college grade performance for college success and apply themselves to meet the academic requirements of various colleges and universities.

Two final observations from this study having implications for future research concern the predictability of the research model. For all groups, the student and institutional level measures were better predictors of prompt than subsequent college graduation. This suggests that the utility and effectiveness of educational attainment models may vary depending upon the point of focus in the schooling career (i.e., college entry, immediate vs. delayed graduation; subsequent higher educational attainment). This point is also illustrated by findings in this study that contradict previous educational attainment research that employed similar independent measures but different dependent variables. For example, past studies on blacks and whites have reported that educational expectations and high school rank are important determinants of college enrollment and the type of college

that students attend (Portes and Wilson, 1976; Thomas, 1979; Thomas, Alexander and Eckland, 1979). In addition, previous studies have found family background and standardized test performance to be major determinants of college access and the total number of years of schooling completed (Sewell and Shah, 1967; Portes and Wilson, 1976). However, this study indicated that upon gaining access to college, standardized test performance is not consequential for four-year college completion for blacks or whites. In addition, educational expectations did not significantly affect the four year college graduation of blacks; nor was high school rank a significant factor for white female college graduation.

Differences between past and present findings clearly indicate that race and sex interactions and the effects of independent variables in educational attainment models vary, depending on the major outcome variable of interest. This point should be seriously considered when comparing educational attainment studies and when formulating educational policy for various students.

The fact that the independent variables accounted for at most thirty-two percent of the variance in the major dependent variables also points to the need for additional inquiries that examine other factors that influence college completion. For example, the impact of student financial aid, faculty and student networks and interaction patterns, and student participation in various campus activities and organizations may increase the percent of variance explained in the present dependent measures.

Additional research that may extend the current findings entails follow-up studies of the occupational achievement of prompt and delayed college completers. As previously noted, interrupting the postsecondary education

sequence has been found to produce attenuated occupational attainment (Featherman and Carter, 1976; Robertshaw and Wolfle, 1980). It would be informative to know the extent to which this finding applies to the current sample of prompt and subsequent college graduates. Thus, questions about the subsequent higher educational and occupational attainment of students are needed to extend our current understanding of race and sex effects on post-secondary educational outcomes.

Figure 1

The Effects of Student and Institutional Characteristics on

the Four-Year College Graduation of Race and Sex Groups

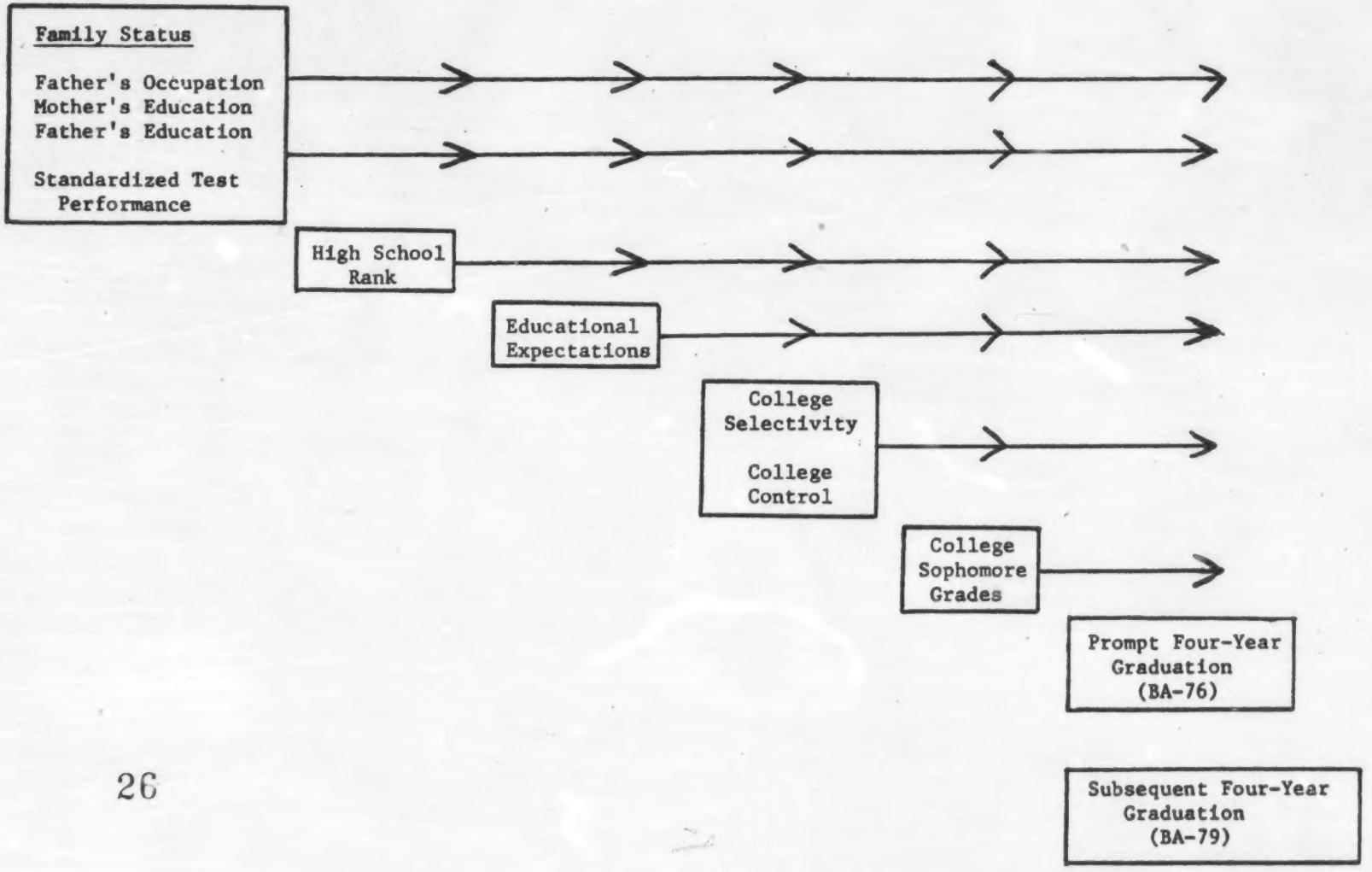

Table 1

Item Means and Standard Deviations
for Race and Sex Subgroups[a]

Variables[b]		Black Males	Black Females	White Males	White Females
Father's Occupation	$\bar{X}$	34.52	32.94	53.74	52.80
	SD	24.46	23.05	23.06	23.25
Mother's Education	$\bar{X}$	2.29	2.14	2.60	2.69
	SD	1.14	1.14	1.05	1.07
Father's Education	$\bar{X}$	2.08	1.96	3.03	3.11
	SD	1.12	1.17	1.31	1.29
Standardized Test Performance	$\bar{X}$	190.44	189.43	229.89	230.79
	SD	27.42	28.05	23.16	23.89
High School Rank	$\bar{X}$	5.93	6.84	7.12	8.17
	SD	2.38	2.61	2.31	1.89
Educational Expectations	$\bar{X}$	5.06	5.28	5.19	5.09
	SD	0.97	0.60	0.74	0.67
College Selectivity	$\bar{X}$	912.94	889.17	1004.48	989.72
	SD	181.08	186.78	123.04	121.93
College Control	$\bar{X}$	0.31	0.34	0.34	0.32
	SD	0.46	0.47	0.47	0.47
College Grades	$\bar{X}$	4.09	4.24	4.78	5.12
	SD	1.12	1.10	1.32	1.26
BA 1976	$\bar{X}$	0.32	0.42	0.49	0.60
	SD	0.47	0.49	0.50	0.49
BA 1979	$\bar{X}$	0.60	0.62	0.74	0.79
	SD	0.49	0.49	0.44	0.41

[a]Due to extensive missing data on the standardized test performance and the college selectivity measure, pairwise present rather than listwise deletion of missing data was used. SPSS's pairwise option eliminates cases only from variables involving missing data rather than from all variables. As a result of this procedure, the number of cases for black males ranged from 157-245; for black females, 191-375; for white males 334-492; and for white females 283-424.

[b]See variable description section for specification of variable categories.

Table 2

Model of Four-Year College Completion for Black Males[a,b]

Independent Variables	Dependent Variables: (1) BA76	(2) BA76	(3) BA76	(4) BA76	(5) BA76	(6) BA76	(1) BA79	(2) BA79	(3) BA79	(4) BA79	(5) BA79	(6) BA79
Family Status[c]	.173	.179	.167	.167	.158	.100	.077	.105	.077	.071	.071	.055
Standardized Test Performance	.004*[d]	.003*	.002*	.002*	.002*	.002*	.011*[d]	.009*	.007*	.009*	.008*	.007*
	.250	.159	.145	.144	.125	.108	.159	.128	.107	.127	.117	.103
High School Rank		.041	.041	.041	.046	.031		.015*	.014*	.014*	.018*	.005*
		.209	.207	.207	.235	.156		.072	.069	.070	.086	.024*
Educational Expectations			.030*	.030*	.023*	.016*			.048*	.050*	.046*	.039*
			.063	.063	.049	.032			.096	.099	.091	.078
College Selectivity				.000*	.000*	-.000*				-.000*	-.000*	-.000*
				.005	-.048	-.003				-.069	-.099	-.064
College Control					.279	.270					.168*	.160*
					.277	.268					.159	.152
College Grades						.147						.120
						.351						.273
R^2	.102	.138	.142	.142	.211	.320	.039	.043	.052	.056	.078	.144

[a]This analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases for black males ranged from 157-245.

[b]Preliminary analyses comparing weighted and unweighted distributions did not yield major differences in the resulting percentages. As a result, the unweighted distributions were used in these analyses.

[c]Values for the Family Status composite are sheaf coefficients which can be interpreted as standardized regression coefficients (Heise, 1972). However, the coefficients do not have a corresponding unstandardized value.

[d]The top value is the unstandardized coefficient and the bottom value is the standardized coefficient.

*Coefficients are less than twice their standard error.

Table 3

Model of Four-Year College Completion for Black Females[a,b]

Independent Variables	Dependent Variables (1) BA76	(2) BA76	(3) BA76	(4) BA76	(5) BA76	(6) BA76	(1) BA79	(2) BA79	(3) BA79	(4) BA79	(5) BA79	(6) BA79
Family Status	.063	.070	.077	.070	.044	.031	.145	.130	.152	.144	.155	.167
Standardized Test Performance	.002* .134	.000* .030	.000* .028	.000* .056	.001* .049	.000* .027	.009* .135	.002* .033	.002* .024	.002* .029	.002* .027	.001* .009
High School Rank		.046 .244	.046 .242	.046 .248	.045 .241	.036 .189		.044 .237	.042 .227	.042 .228	.042 .226	.034 .183
Educational Expectations			.012* .014	.022* .027	.002* .003	-.015* -.018			.065* .081	.068* .083	.062* .075	.047* .058
College Selectivity				-.000* -.107	-.000* -.115	-.000* -.073				-.000* -.023	-.000* -.025	.000* .009
College Control					.117* .112	.130* .124					.038* .037	.048* .047
College Grades						.098 .218						.079 .179
R^2	.022	.072	.072	.082	.093	.136	.042	.089	.095	.096	.097	.125

[a]This analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases for black females ranged from 191-375.

[b]Preliminary analyses comparing weighted and unweighted distributions did not yield major differences in the resulting percentages. As a result, the unweighted distributions were used in these analyses.

[c]Values for the Family Status composite are sheaf coefficients which can be interpreted as standardized regression coefficients (Heise, 1972). However, the coefficients do not have a corresponding unstandardized value.

[d]The top value is the unstandardized coefficient and the bottom value is the standardized coefficient.

[e]Coefficients are less than twice their standard error.

Table 4

Model of Four-Year College Graduation for White Males[a,b]

Independent Variables	Dependent Variables (1) BA76	(2) BA76	(3) BA76	(4) BA76	(5) BA76	(6) BA76	(1) BA79	(2) BA79	(3) BA79	(4) BA79	(5) BA79	(6) BA79
Family Status	.054	.089	.083	.083	.031	.063	.126	.158	.118	.109	.105	.118
Standardized Test Performance	.005 .271	.002* .101	.002* .073	.001* .059	.001* .046	-.000* -.002*	.015* .195	.005* .070	.003* .043	.002* .025	.002* .024	-.003* -.038
High School Rank		.063 .289	.054 .249	.052 .241	.057 .262	.047 .215		.040 .212	.033 .175	.031 .164	.031 .165	.020 .104
Educational Expectations			.139 .206	.135 .200	.138 .203	.119 .176			.115 .194	.111 .186	.111 .186	.090 .151
College Selectivity				.000* .068	-.000* -.000	.000* .020				.000* .087	.000* .084	.000* .110
College Control					.237 .225	.217 .206					.010* .011	-.013* -.014
College Grades						.091 .239						.104 .311
R^2	.074	.130	.166	.170	.216	.264	.059	.089	.121	.128	.128	.210

[a]This analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases for white males ranged from 334-492.

[b]Preliminary analyses comparing weighted and unweighted distributions did not yield major differences in the resulting percentages. As a result, the unweighted distributions were used in these analyses.

[c]Values for the Family Status composite are sheaf coefficients which can be interpreted as standardized regression coefficients (Heise, 1972). However, the coefficients do not have a corresponding unstandardized value.

[d]The top value is the unstandardized coefficient and the bottom value is the standardized coefficient.

*Coefficients are less than twice their standard error.

Table 5

Model of Four-Year College Completion for White Females[a,b]

Independent Variables	Dependent Variables (1) BA76	(2) BA76	(3) BA76	(4) BA76	(5) BA76	(6) BA76	(1) BA79	(2) BA79	(3) BA79	(4) BA79	(5) BA79	(6) BA79
Family Status	.070	.104	.083	.063	.031	.063	.084	.100	.122	.077	.084	.063
Standardized Test Peformance	.004 .204	.003 * .129	.001 * .074	.001 * .060	.001 * .029	-.001 * -.029	.017 .254	.012 .171	.011 * .157	.010 * .144	.010 * .141	.007 * .097
High School Rank		.035 * .135	.035 * .137	.034 * .134	.041 * .158	.025 * .096		.032 * .148	.032 * .148	.031 * .145	.032 * .148	.022 * .101
Educational Expectations			.123 .169	.118 .162	.111 .152	.131 .181			.026 * .043	.021 * .036	.021 * .035	.034 * .057
College Selectivity				.000* .068	.000* .028	.000* .053				.000 * .065	.000 * .062	.000 * .081
College Control					.141* .134	.121* .115					.010 * .011	-.002 * -.003
College Grades						.093 .240						.058 .179
R^2	.057	.070	.095	.099	.114	.160	.079	.094	.096	.100	.010	.126

[a]This analysis is based on SPSS subprogram regression option Pairwise Deletion. The number of cases for white females ranged from 283-424.

[b]Preliminary analyses comparing weighted and unweighted distributions did not yield major differences in the resulting percentages. As a result, the unweighted distributions were used in these analyses.

[c]Values for the Family Status composite are sheaf coefficients which can be interpreted as standardized regression coefficients (Heise, 1972). However, the coefficients do not have a corresponding unstandardized value.

[d]The top value is the unstandardized coefficient and the bottom value is the standardized coefficient.

*Coefficients are less than twice their standard error.

Table 6

Decomposition of Effects of Independent Variables on Prompt (1976) College Graduation for Race and Sex Groups[a]

Independent Variables	Black Males			Black Females			White Males			White Females		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Family Status (SES)	.100	.073	.173	.031	.032	.063	.063	-.009	.054	.063	.141	.204
Stand. Test Performance	.108	.142	.250	.027	.107	.134	-.002	.273	.271	-.029	.164	.135
High School Rank	.156	.053	.209	.189	.055	.244	.215	.074	.289	.096	.073	.169
Educational Expectations	.032	.031	.063	-.018	.032	.014	.176	.030	.206	.181	-.113	.068
College Selectivity	-.003	.008	.005	-.073	-.034	-.107	.020	.048	.068	.053	.015	.068
College Control	.268	.009	.277	.124	-.012	.112	.206	.019	.225	.115	.019	.134
College Grades	.351	—	.351	.218	—	.218	.239	--	.239	.240	--	.240

[a]When the independent variables are entered stepwise into the regression equations as in the present case, the total effect equals the standardized regression coefficient produced for an independent variable when it first enters the regression equation. These values are reported above as total effects. The direct or net effects shown in the table are duplicate standardized values from columns 6 of Tables 2-5. The total indirect effect coefficients shown were derived by subtracting column 5 (the direct effect) from column 3 (the total effect). A more technical method for decomposing independent variable effects can be found in Alwin and Hauser (1975). Use of the latter procedure yields results which closely approximate the values in Tables 6 and 7, allowing for rounding differences.

Table 7

Decomposition of Effects of Independent Variables on Subsequent (1979) College Graduation for Race and Sex Groups[a]

Independent Variables	Black Males			Black Females			White Males			White Females		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Family Status (SES)	.055	.022	.077	.167	-.022	.145	.118	.008	.126	.063	.021	.084
Stand. Test Performance	.103	.056	.159	.009	.126	.135	-.038	.233	.195	.097	.157	.254
High School Rank	.024	.048	.072	.183	.054	.237	.104	.108	.212	.101	.047	.148
Educational Expectations	.078	.018	.096	.058	.023	.081	.151	.043	.194	.057	-.014	.043
College Selectivity	-.064	-.005	-.069	.009	-.032	-.023	.110	-.023	.087	.081	-.016	.065
College Control	.152	.007	.159	.047	-.010	.037	-.014	.025	.011	-.003	.014	.011
College Grades	.273	--	.273	.179	--	.179	.311	--	.311	.179	--	.179

[a]When the independent variables are entered stepwise into the regression equations as in the present case, the total effect equals the standardized regression coefficient produced for an independent variable when it first enters the regression equation. These values are reported above as total effects. The direct or net effects shown in the table are duplicate standardized values from columns 6 of Tables 2-5. The total indirect effect coefficients shown were derived by subtracting column 5 (the direct effect) from column 3 (the total effect). A more technical method for decomposing independent variable effects can be found in Alwin and Hauser (1975). Use of the latter procedure yields results which closely approximate the values in Tables 6 and 7, allowing for rounding differences.

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